

EXHIBIT W

EXHIBIT 19

Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

U.S. Patent No. 11,785,275 Exemplary Infringement Chart

Cox operates and maintains a nationwide television and data network through which it sells, leases, and offers for sale products and services, including the Technicolor CGM4981, Technicolor CGM4331, Technicolor CGM4141, Technicolor CVA4004, ARRIS / Surfboard TM3402, ARRIS / Surfboard G36, ARRIS / Surfboard G54, ARRIS / Surfboard S33, ARRIS / Surfboard CM8200, ARRIS / Surfboard G34, ARRIS / Surfboard SB8200, ARRIS / Surfboard DG2460, ARRIS TM9202, Hitron CODA56, Hitron CODA, Humax HGD310, Motorola B12, Motorola MB8611, Motorola MG8725, Motorola MB8600, Motorola MG8702, Netgear CM2000, Netgear C7800, Netgear CAX30, Netgear CAX80, Netgear CBR750, Netgear CM1000, Netgear CM1000v2, Netgear CM1100, Netgear CM1200, Netgear CM2500, Netgear CM3000, Ubiquiti UCI, ARRIS / Surfboard TG2472, ARRIS / Surfboard SBG7400AC2, ARRIS / Surfboard SBG7600AC2, Motorola MB7621, Motorola MG7700, Netgear C6900, Netgear C7000v2, Netgear C7500, Netgear CBR40, Netgear CM600, Netgear CM700, TP-LINK TC-7650, ARRIS / Surfboard SB6183, ARRIS / Surfboard SBG6900, Asus CM16, Motorola MB7420, Motorola MG7540, Motorola MG7550, Netgear C6230, Netgear C6250, Netgear C6300, Netgear C6300v2, Netgear CM500, TP-LINK TC-7620, TP-LINK CR500, TP-LINK CR700, TP-LINK CR1900, SMC D3CM1604, Zoom 5370, and products that operate in a similar manner (“Accused Cable Modem Products”), as well as the Arris AX013ANC STB, Arris AX013ANM STB, Pace PX022ANC STB, Pace PX022ANM STB, Samsung SX022ANC STB, Samsung SX022ANM STB, and products that operate in a similar manner (“Accused Set Top Products”). Cox provides cable television and internet services (“Accused Services”) via the lease, sale, and/or distribution of the Accused Cable Modem Products and/or the Accused Set Top Products. Cox literally and/or under the doctrine of equivalents infringes the claims of the ’206 Patent by making, using, selling, offering for sale, and/or importing the Accused Services, Accused Cable Modem Products, and/or the Accused Set Top Products.

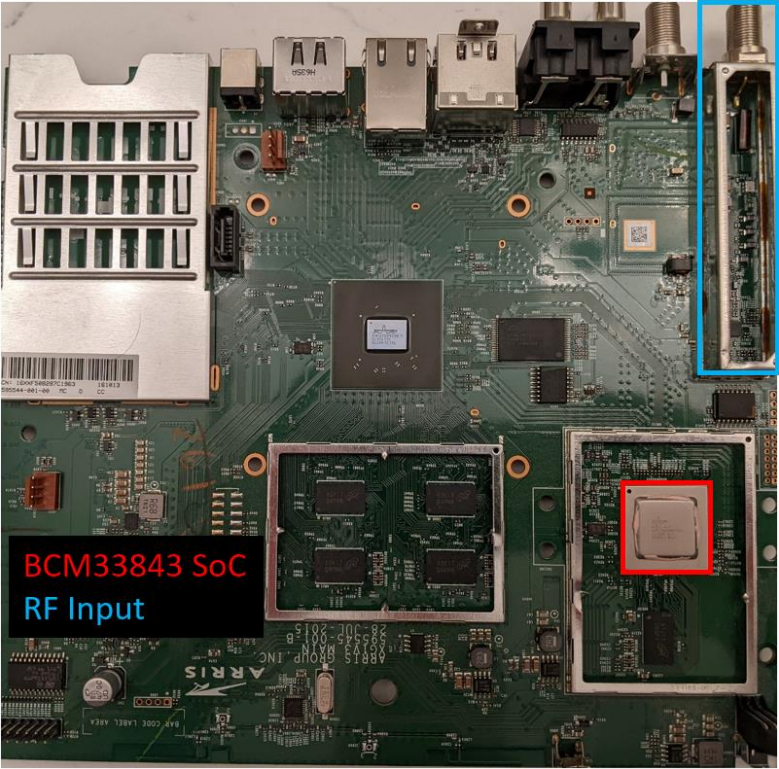
As shown below in the chart with exemplary support, the Accused Services and/or the Accused Set Top Products infringe at least claims 1, 2, 5, 7, 8, 10-12, 15, 17, 18, and 20 of U.S. Patent No. 11,785,275 (“’275 Patent”). The ‘275 Patent was filed September 30, 2022, issued October 10, 2023, and is entitled “System and Method for Receiving a Television Signal.” The ‘275 Patent claims priority to U.S. Patent Application No. 17/862,946, filed on Jul. 12, 2022; U.S. Patent Application No. 17/587,462, filed on Jan. 28, 2022; U.S. Patent Application No. 17/217,244, filed on Mar. 30, 2021; U.S. Patent Application No. 16/430,506, filed on Jun. 4, 2019; U.S. Patent Application No. 15/792,318, filed Oct. 24, 2017; U.S. Patent Application No. 14/948,881, filed Nov. 23, 2015; U.S. Patent Application No. 14/617,973, filed on Feb. 10, 2015; U.S. Patent Application No. 13/962,871, filed on Aug. 8, 2013; U.S. Patent Application Serial No. 12/762,900 filed on Apr. 19, 2010; and U.S. Provisional Patent Application No. 61/170,526 filed Apr. 17, 2009.

Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

The Accused Services infringe the claims of the '275 Patent, as described below, either directly under 35 U.S.C. § 271(a), or indirectly under 35 U.S.C. §§ 271(b)–(c).

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
1pre	A method for operating a television receiver, comprising:	<p>The Accused Services perform the claimed method utilizing, for example, the Accused Set Top Products, which include at least one set top box (“STB”) located at each subscriber location, including, for example, the Arris AX013ANC STB, Arris AX013ANM STB, Pace PX022ANC STB, Pace PX022ANM STB, Samsung SX022ANC STB, Samsung SX022ANM STB, and products that operate in a similar manner.</p> <p>By way of example, the Arris AX013ANM is charted herein. As described below, the Arris AX013ANM has a Broadcom BCM33843 SoC. On informed belief, the Arris AX013ANM is representative of all Accused Set Top Products, including those having BCM3383, BCM3384, BCM33843, or BCM3390 SoCs.</p>
1a	receiving, by an input terminal, an input signal comprising broadcast channels, the broadcast channels comprising a plurality of desired channels and a plurality of undesired channels, wherein the plurality of desired channels are non-contiguous;	<p>The Accused Services receive, by an input terminal, an input signal comprising broadcast channels, the broadcast channels comprising a plurality of desired channels and a plurality of undesired channels, wherein the plurality of desired channels are non-contiguous as described below.</p> <p>Specifically, the Accused Set Top Products include an input terminal that receives an input signal from the cable plant. For example, as shown below, the Arris AX013ANM includes a RF input, highlighted in blue, that is connected to a coaxial cable. This coaxial cable carries the input signal received via the cable plant. On informed belief, the input signal includes one or more television channels and one or more data channels, together constituting broadcast channels. On informed belief, the plurality of desired channels are located in non-contiguous portions of the input signal.</p>

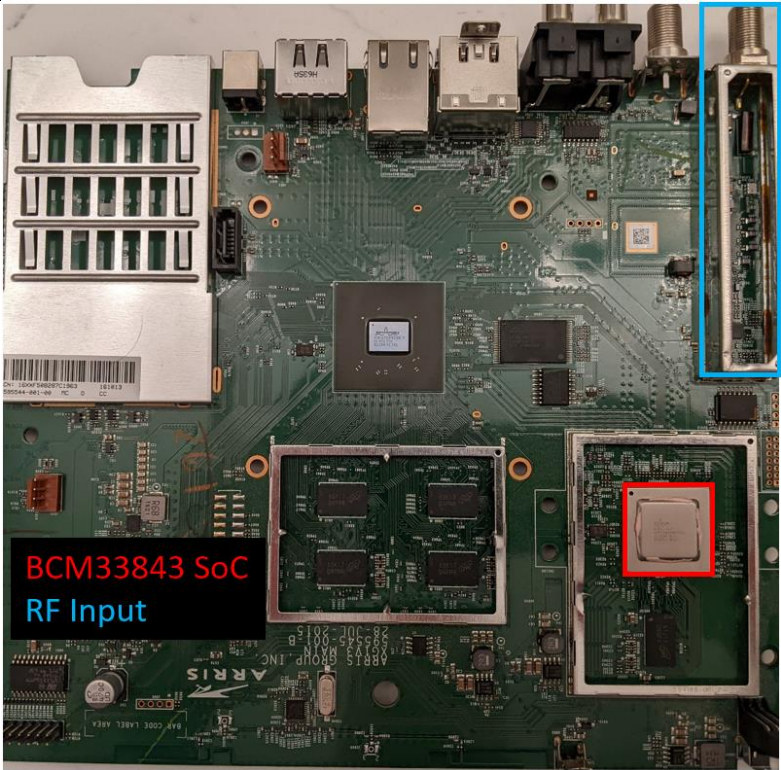
Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		 <p>BCM33843 SoC RF Input</p> <p>“Broadcom’s BCM3384 DOCSIS®/EuroDOCSIS™ 3.0 cable gateway SoC combines Broadcom’s Full-Band Capture (FBC) digital tuning technology with remote diagnostics, dual-band concurrent Wi-Fi, a dedicated applications processor and integrated DECT 6.0 CAT-iq 2.0.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002017)</p> <p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere.”</p>

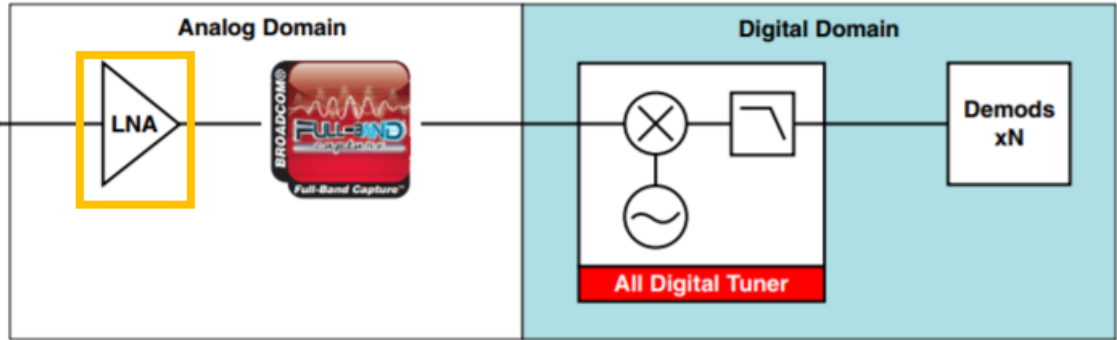
Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>(ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned.”</p> <p>(ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed system. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
1b	processing, by a radio front end coupled to the input terminal, the input signal to generate a processed input signal;	<p>The Accused Services process, by a radio front end coupled to the input terminal, the input signal to generate a processed input signal as described below.</p> <p>Specifically, the Accused Set Top Products include applicable circuitry and/or software modules that processes the input signal. For example, the Arris AX013ANM includes a Broadcom BCM33843 SoC, highlighted in red below. The applicable circuitry and/or software modules of the Accused Set Top Products include a radio front end that processes the input signal, highlighted in orange below.</p>

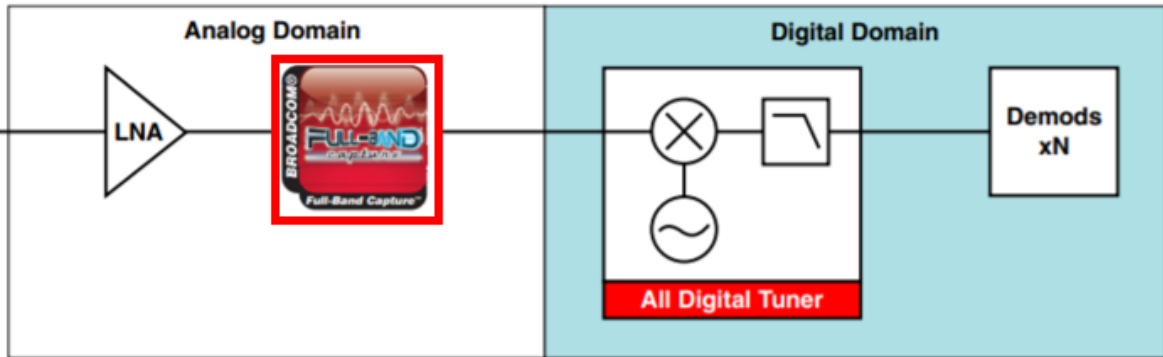
Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<div data-bbox="739 250 1514 1015"><p>BCM33843 SoC RF Input</p></div> <p>“Broadcom’s BCM3384 DOCSIS®/EuroDOCSIS™ 3.0 cable gateway SoC combines Broadcom’s Full-Band Capture (FBC) digital tuning technology with remote diagnostics, dual-band concurrent Wi-Fi, a dedicated applications processor and integrated DECT 6.0 CAT-iq 2.0.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002017)</p>

Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>Full-Band Capture Digital Tuner Architecture</p>  <p>(ENTROPIC_COX_002010 at ENTROPIC_COX_002012, annotated)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed system. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
1c	digitizing, by an analog-to-digital converter (ADC) coupled to the radio front end, the processed input signal to generate a digitized signal;	<p>The Accused Services digitize, by an analog-to-digital converter (ADC) coupled to the radio front end, the processed input signal to generate a digitized signal as described below.</p> <p>Specifically, the Accused Set Top Products include applicable circuitry and/or software modules constituting an ADC that digitizes the input signal. For example, the Arris AX013ANM includes applicable circuitry and/or software modules constituting a full-band capture ADC, highlighted in red below, that is coupled to the radio front end and digitizes the processed input signal.</p> <p>“Broadcom’s BCM3384 DOCSIS®/EuroDOCSIS™ 3.0 cable gateway SoC combines Broadcom's Full-Band Capture (FBC) digital tuning technology with remote diagnostics, dual-band concurrent Wi-Fi, a dedicated applications processor and integrated DECT 6.0 CAT-iq 2.0.”</p>

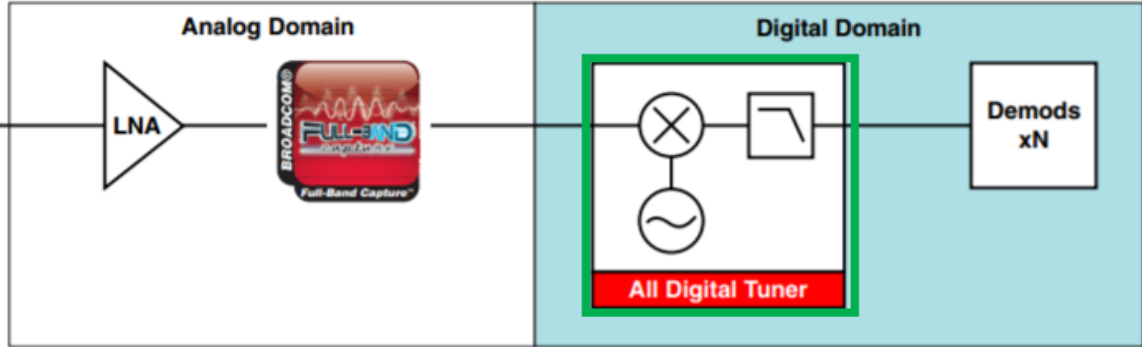
Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>(ENTROPIC_COX_002016 at ENTROPIC_COX_002017)</p> <p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>Full-Band Capture Digital Tuner Architecture</p>  <p>(ENTROPIC_COX_002010 at ENTROPIC_COX_002012, annotated)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement</p>

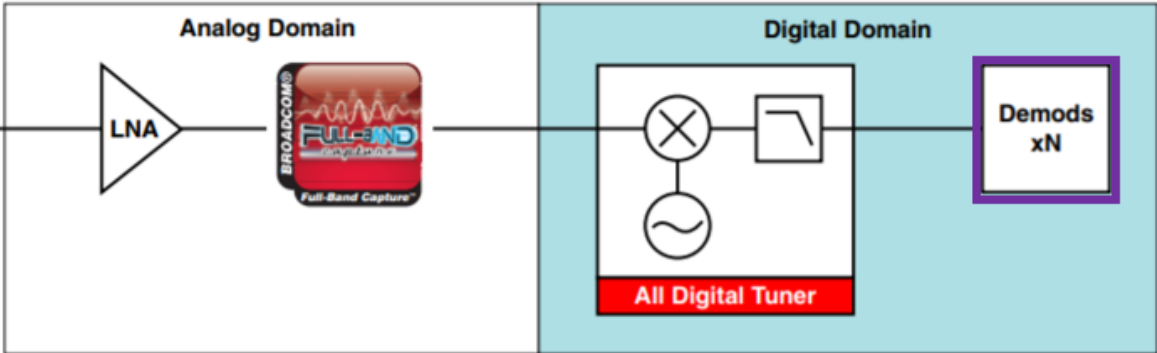
Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		the claimed system. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.
1d	selecting, by a digital frontend (DFE) coupled to the ADC, the plurality of desired channels from the digitized signal; and	<p>The Accused Services select, by a digital frontend (DFE) coupled to the ADC, the plurality of desired channels from the digitized signal as described below.</p> <p>Specifically, the Accused Set Top Products include applicable circuitry and/or software modules constituting a digital front end operable to select the plurality of desired channels from the digitized signal. For example, the Arris AX013ANM includes applicable circuitry and/or software modules constituting a digital tuner, highlighted in green below, that is coupled to the ADC and selects the desired channels from the digitized signal.</p> <p>“Broadcom’s BCM3384 DOCSIS®/EuroDOCSIS™ 3.0 cable gateway SoC combines Broadcom's Full-Band Capture (FBC) digital tuning technology with remote diagnostics, dual-band concurrent Wi-Fi, a dedicated applications processor and integrated DECT 6.0 CAT-iq 2.0.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002017)</p> <p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p>

Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>Full-Band Capture Digital Tuner Architecture</p>  <p>(ENTROPIC_COX_002010 at ENTROPIC_COX_002012, annotated)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed system. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
1e	outputting, by the DFE, the selected plurality of desired channels to at least one demodulator as a digital datastream,	<p>The Accused Services output, by the DFE, the selected plurality of desired channels to at least one demodulator as a digital datastream as described below.</p> <p>Specifically, the Accused Set Top Products include applicable circuitry and/or software modules that output the desired channels from the digital front end to at least one demodulator. For example, the Arris AX013ANM includes applicable circuitry and/or software modules constituting at least one demodulator, highlighted in purple below, that is coupled to the digital tuner. The digital tuner outputs the desired channels to the demodulators for processing. As both the digital tuner and the demodulators are in the digital domain, the output to the demodulators is a digital datastream.</p>






Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>Full-Band Capture Digital Tuner Architecture</p>  <p>The diagram illustrates the Full-Band Capture Digital Tuner Architecture. It is divided into two main sections: the Analog Domain and the Digital Domain. In the Analog Domain, an input signal enters an LNA (Low Noise Amplifier) block, followed by a Broadcom Full-Band Capture chip. The output of this chip connects to the Digital Domain. Within the Digital Domain, the signal passes through a block containing a multiplier (X) and a filter, which is part of an All Digital Tuner. The final output is a Demodulated signal (Demods xN).</p> <p>(ENTROPIC_COX_002010 at ENTROPIC_COX_002012, annotated)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed system. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>

Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
1f	wherein the demodulator extracts information encoded in the digital datastream.	<p>The demodulator extracts information encoded in the digital datastream as described below.</p> <p>Specifically, the demodulators include applicable circuitry and/or software modules that output the desired channels from the digital tuner to at least one demodulator. For example, the Arris AX013ANM includes applicable circuitry and/or software modules constituting the demodulators to extract information, such as television programming, encoded in the digital datastream.</p> <p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed system. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
2	The method of claim 1, wherein the DFE outputs the digital datastream via a serial interface.	<p>The DFE outputs the digital datastream via a serial interface as described below.</p> <p>Specifically, the Accused Set Top Products include applicable circuitry and/or software modules constituting a DFE that outputs a digital datastream. <i>See</i> 1e. On informed belief, this digital datastream is provided via a serial interface.</p>






Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed system. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.
5	The method of claim 1, wherein the extracted information is stored for use in a digital video recorder (DVR).	<p>The extracted information is stored for use in a digital video recorder (DVR) as described below.</p> <p>Specifically, the Accused Set Top Products are DVRs. For example, the Arris AX013ANM is a DVR.</p> <p>Arris XG1v3 High Definition DVR Receiver</p> <p>Share or Print This Article</p> <p>     </p> <p>Details</p>  <p>Receiver Capabilities</p> <ul style="list-style-type: none"> ✓ HD Capable ✓ Up to 6 simultaneous DVR recordings ✓ Up to 1000 hours of SD recording ✓ Up to 500 hours of HD recording <p>Note: Estimated storage will vary with a mix of HD and SD recordings.</p>






Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		(ENTROPIC_COX_001968 at ENTROPIC_COX_001968) Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed system. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.
7	The method of claim 1, wherein the plurality of desired channels comprises at least one television channel.	The plurality of desired channels comprises at least one television channel as described below. Specifically, the Accused Set Top Products are used to watch and/or record television programming. This includes a user selecting one or more desired television channels to watch and/or record. “Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018) “Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)

Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>Arris XG1v3 High Definition DVR Receiver</p> <p>Share or Print This Article</p> <p>     </p> <p>Details</p> <div data-bbox="772 524 1705 946">  <p>Receiver Capabilities</p> <ul style="list-style-type: none"> ✓ HD Capable ✓ Up to 6 simultaneous DVR recordings ✓ Up to 1000 hours of SD recording ✓ Up to 500 hours of HD recording <p>Note: Estimated storage will vary with a mix of HD and SD recordings.</p> </div> <p>(ENTROPIC_COX_001968 at ENTROPIC_COX_001968)</p>
8	The method of claim 1, wherein the plurality of undesired channels comprises at least one television channel.	<p>The plurality of undesired channels comprises at least one television channel as described below.</p> <p>Specifically, the Accused Set Top Products are used to watch and/or record television programming. This includes a user selecting one or more desired television channels to watch and/or record. The other television channels provided by Cox that the user does not select constitute the plurality of undesired channels.</p>






Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>Arris XG1v3 High Definition DVR Receiver</p> <p>Share or Print This Article</p> <p>     </p> <p>Details</p> <div data-bbox="772 943 1705 1369">  <p>Receiver Capabilities</p> <ul style="list-style-type: none"> ✓ HD Capable ✓ Up to 6 simultaneous DVR recordings ✓ Up to 1000 hours of SD recording ✓ Up to 500 hours of HD recording <p>Note: Estimated storage will vary with a mix of HD and SD recordings.</p> </div> <p>(ENTROPIC_COX_001968 at ENTROPIC_COX_001968)</p>

Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
10	The method of claim 1, wherein the broadcast channels comprise cable broadcast channels.	<p>The broadcast channels comprise cable broadcast channels as described below.</p> <p>Specifically, Cox is a cable provider and the Accused Services include providing cable broadcast channels.</p> <p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p>

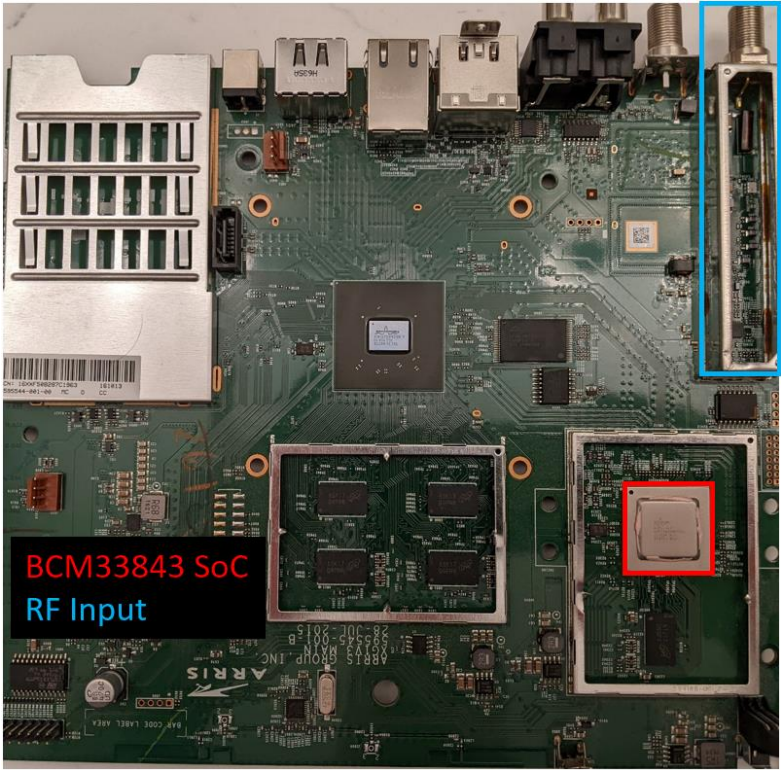
Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>Arris XG1v3 High Definition DVR Receiver</p> <p>Share or Print This Article</p> <p>     </p> <p>Details</p>  <p>Receiver Capabilities</p> <ul style="list-style-type: none"> ✓ HD Capable ✓ Up to 6 simultaneous DVR recordings ✓ Up to 1000 hours of SD recording ✓ Up to 500 hours of HD recording <p>Note: Estimated storage will vary with a mix of HD and SD recordings.</p> <p>(ENTROPIC_COX_001968 at ENTROPIC_COX_001968)</p>
11pre	A television receiver device, comprising:	<p>The Accused Services are provided using at least one set top box (“STB”) located at each subscriber location, for example, the Accused Set Top Products including the Arris AX013ANC STB, Arris AX013ANM STB, Pace PX022ANC STB, Pace PX022ANM STB, Samsung SX022ANC STB, Samsung SX022ANM STB, and products that operate in a similar manner.</p> <p>As shown below, the Accused Set Top Products constitute a television receiver device. By way of example, the Arris AX013ANM is charted herein. As described below, the Arris AX013ANM has a Broadcom BCM33843 SoC. On informed belief, the Arris AX013ANM is</p>

Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		representative of all Accused Set Top Products, including those having BCM3383, BCM3384, BCM33843, or BCM3390 SoCs.
11a	an input terminal operable to receive an input signal comprising broadcast channels, the broadcast channels comprising a plurality of desired channels and a plurality of undesired channels, wherein the plurality of desired channels are non-contiguous;	<p>The Accused Set Top Products include an input terminal operable to receive an input signal comprising broadcast channels, the broadcast channels comprising a plurality of desired channels and a plurality of undesired channels, wherein the plurality of desired channels are non-contiguous as described below.</p> <p>Specifically, the Accused Set Top Products include an input terminal that receives an input signal from the cable plant. For example, as shown below, the Arris AX013ANM includes a RF terminal, highlighted in blue, that is connected to a coaxial cable. This coaxial cable carries the input signal received via the cable plant. On informed belief, the input signal includes one or more television channels and one or more data channels, together constituting broadcast channels. On informed belief, the plurality of desired channels are located in non-contiguous portions of the input signal.</p>

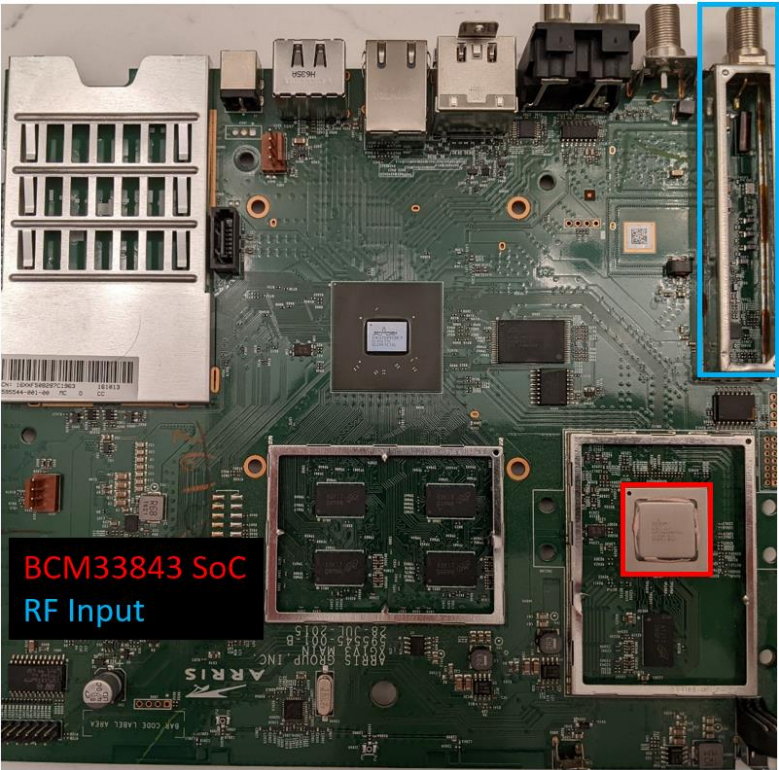
Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<div data-bbox="739 250 1514 1015"></div> <p data-bbox="739 1068 1940 1230">“Broadcom’s BCM3384 DOCSIS®/EuroDOCSIS™ 3.0 cable gateway SoC combines Broadcom’s Full-Band Capture (FBC) digital tuning technology with remote diagnostics, dual-band concurrent Wi-Fi, a dedicated applications processor and integrated DECT 6.0 CAT-iq 2.0.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002017)</p> <p data-bbox="739 1279 1940 1398">“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere.”</p>

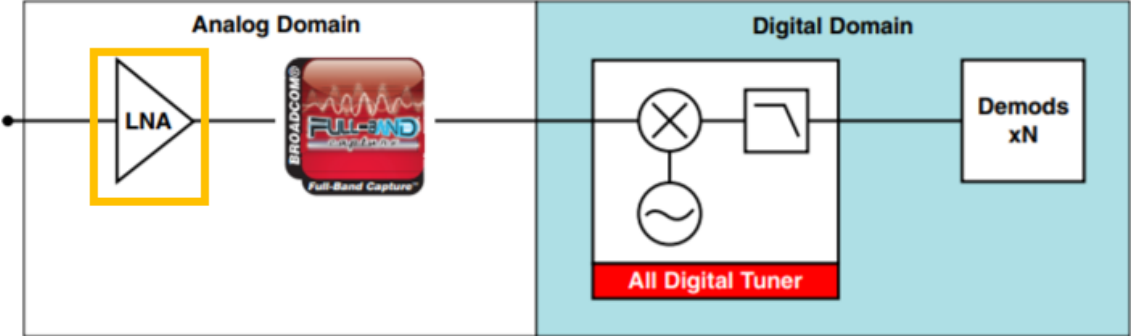
Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>(ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned.”</p> <p>(ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed system. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
11b	a radio front end, coupled to the input terminal, operable to process the input signal;	<p>The Accused Set Top Products include a radio front end, coupled to the input terminal, operable to process the input signal as described below.</p> <p>Specifically, the Accused Set Top Products include applicable circuitry and/or software modules constituting a radio front end coupled to the input terminal. For example, the Arris AX013ANM includes a Broadcom BCM33843 SoC, highlighted in red below. The applicable circuitry and/or software modules include a radio front end that processes the input signal, highlighted in orange below.</p>

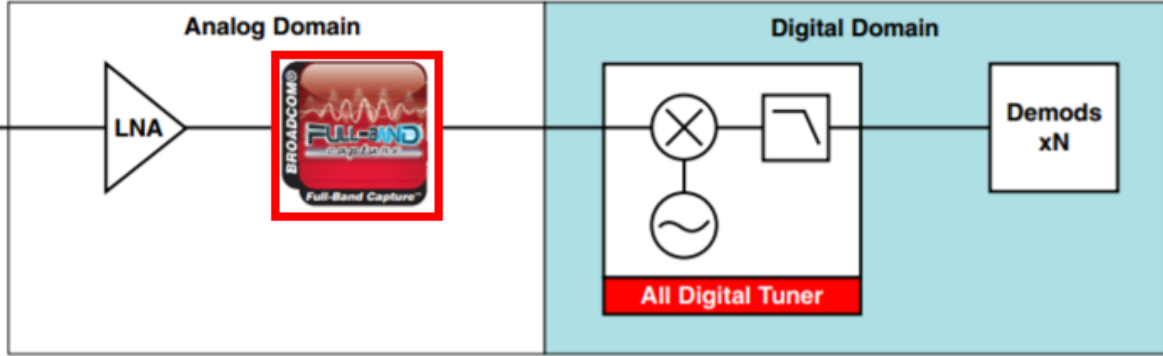
Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		 <p data-bbox="741 1068 1940 1230">“Broadcom’s BCM3384 DOCSIS®/EuroDOCSIS™ 3.0 cable gateway SoC combines Broadcom’s Full-Band Capture (FBC) digital tuning technology with remote diagnostics, dual-band concurrent Wi-Fi, a dedicated applications processor and integrated DECT 6.0 CAT-iq 2.0.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002017)</p>

Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>Full-Band Capture Digital Tuner Architecture</p>  <p>(ENTROPIC_COX_002010 at ENTROPIC_COX_002012, annotated)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed system. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
11c	<p>an analog-to-digital converter (ADC), coupled to the radio front end, operable to digitize the processed input signal to generate a digitized signal; and</p>	<p>The Accused Set Top Products include an analog-to-digital converter (ADC), coupled to the radio front end, operable to digitize the processed input signal to generate a digitized signal as described below.</p> <p>Specifically, the Accused Set Top Products include applicable circuitry and/or software modules constituting an ADC that digitizes the input signal. For example, the Arris AX013ANM includes applicable circuitry and/or software modules constituting a full-band capture ADC, highlighted in red below, that is coupled to the radio front end and digitizes the processed input signal.</p>

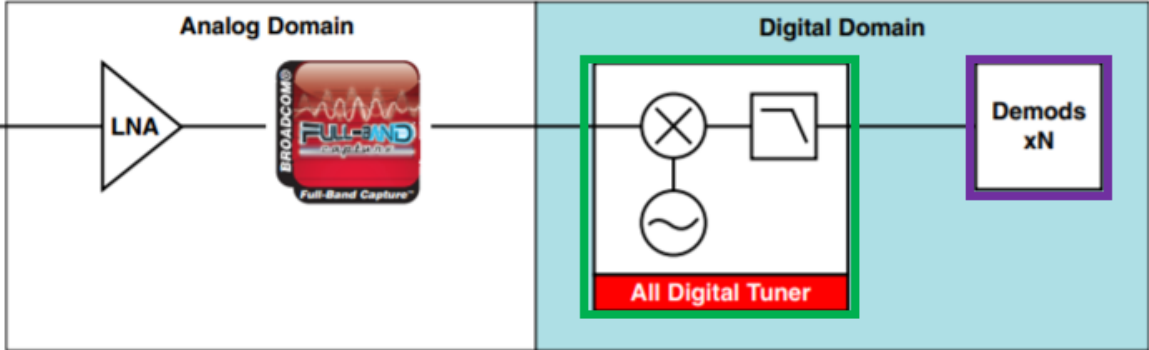
Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>“Broadcom’s BCM3384 DOCSIS®/EuroDOCSIS™ 3.0 cable gateway SoC combines Broadcom's Full-Band Capture (FBC) digital tuning technology with remote diagnostics, dual-band concurrent Wi-Fi, a dedicated applications processor and integrated DECT 6.0 CAT-iq 2.0.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002017)</p> <p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002017)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002017)</p> <p>Full-Band Capture Digital Tuner Architecture</p>  <p>The diagram illustrates the Full-Band Capture Digital Tuner Architecture, divided into two main sections: the Analog Domain and the Digital Domain. In the Analog Domain, an input signal enters from the left, passes through a Low Noise Amplifier (LNA) represented by a triangle, and then enters a red-bordered box labeled 'Full-Band Capture' which contains a waveform icon. This box is connected to the Digital Domain, which is shaded in light blue. Inside the Digital Domain, the signal enters a block labeled 'All Digital Tuner' (with a red bottom bar). This block contains a multiplier (circle with an 'X') and a filter (trapezoid). Below the multiplier is a sine wave icon. The output of the 'All Digital Tuner' block goes to a 'Demods xN' block.</p> <p>(ENTROPIC_COX_002010 at ENTROPIC_COX_002012, annotated)</p>






Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed system. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.
11d	a digital frontend (DFE), coupled to the ADC, operable to select the plurality of desired channels from the digitized signal and output the selected plurality of desired channels to at least one demodulator as a digital datastream,	<p>The Accused Set Top Products include a digital frontend (DFE), coupled to the ADC, operable to select the plurality of desired channels from the digitized signal and output the selected plurality of desired channels to at least one demodulator as a digital datastream as described below.</p> <p>Specifically, the Accused Set Top Products include applicable circuitry and/or software modules constituting a digital front end operable to select the plurality of desired channels from the digitized signal. For example, the Arris AX013ANM includes applicable circuitry and/or software modules constituting a digital tuner, highlighted in green below, that is coupled to the ADC and selects the desired channels from the digitized signal. The selected channels are output to a demodulator, highlighted in purple below. As both the tuner and the demodulators are in the digital domain, the output from the tuner to the demodulators is a digital datastream.</p> <p>“Broadcom’s BCM3384 DOCSIS®/EuroDOCSIS™ 3.0 cable gateway SoC combines Broadcom’s Full-Band Capture (FBC) digital tuning technology with remote diagnostics, dual-band concurrent Wi-Fi, a dedicated applications processor and integrated DECT 6.0 CAT-iq 2.0.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002017)</p> <p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating</p>

Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>Full-Band Capture Digital Tuner Architecture</p>  <p>(ENTROPIC_COX_002010 at ENTROPIC_COX_002012, annotated)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed system. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
11e	wherein the demodulator is operable to extract information encoded in the digital datastream.	<p>The demodulator is operable to extract information encoded in the digital datastream as described below.</p> <p>Specifically, the demodulators include applicable circuitry and/or software modules that output the desired channels from the digital tuner to at least one demodulator. For example, the Arris AX013ANM includes applicable circuitry and/or software modules constituting the demodulators to extract information, such as television programming, encoded in the digital datastream.</p>






Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <h3>Arris XG1v3 High Definition DVR Receiver</h3> <p>Share or Print This Article</p> <p>   </p> <h4>Details</h4> <div><p>The image shows a black, rectangular Arris XG1v3 High Definition DVR Receiver. It features a digital display on the left showing '88:88' and three indicator lights (green, yellow, red) labeled 'Remote', 'Data', and 'Record'. The brand name 'CONTOUR' is visible on the front. On the right side, there is a blue circular power button with a power symbol.</p></div> <h4>Receiver Capabilities</h4> <ul style="list-style-type: none">✓ HD Capable✓ Up to 6 simultaneous DVR recordings✓ Up to 1000 hours of SD recording✓ Up to 500 hours of HD recording <p>Note: Estimated storage will vary with a mix of HD and SD recordings.</p>

Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		(ENTROPIC_COX_001968 at ENTROPIC_COX_001968) Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed system. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.
12	The television receiver device of claim 11, wherein the DFE is operable to output the digital datastream via a serial interface.	The DFE is operable to output the digital datastream via a serial interface as described below. Specifically, the Accused Set Top Products include applicable circuitry and/or software modules constituting a DFE that outputs a digital datastream. <i>See</i> 11d. On informed belief, this digital datastream is provided via a serial interface. Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed system. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.
15	The television receiver device of claim 11, wherein the extracted information is stored for use in a digital video recorder (DVR).	The extracted information is stored for use in a digital video recorder (DVR) as described below. Specifically, the Accused Set Top Products are DVRs. For example, the Arris AX013ANM is a DVR.






Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>Arris XG1v3 High Definition DVR Receiver</p> <p>Share or Print This Article</p> <p>     </p> <p>Details</p>  <p>Receiver Capabilities</p> <ul style="list-style-type: none"> ✓ HD Capable ✓ Up to 6 simultaneous DVR recordings ✓ Up to 1000 hours of SD recording ✓ Up to 500 hours of HD recording <p>Note: Estimated storage will vary with a mix of HD and SD recordings.</p> <p>(ENTROPIC_COX_001968 at ENTROPIC_COX_001968)</p> <p>Discovery will provide detailed information regarding implementation and identification of the specific components, source code, software and/or other instrumentalities used to implement the claimed system. As additional information is obtained through discovery related to the Accused Services and related instrumentalities, Entropic will supplement these contentions.</p>
17	The television receiver device of claim 11, wherein the plurality of desired channels comprises at least one television channel.	The plurality of desired channels comprises at least one television channel as described below.






Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>Specifically, the Accused Set Top Products are used to watch and/or record television programming. This includes a user selecting one or more desired television channels to watch and/or record.</p> <p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p>

Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>Arris XG1v3 High Definition DVR Receiver</p> <p>Share or Print This Article</p> <p>     </p> <p>Details</p>  <p>Receiver Capabilities</p> <ul style="list-style-type: none"> ✓ HD Capable ✓ Up to 6 simultaneous DVR recordings ✓ Up to 1000 hours of SD recording ✓ Up to 500 hours of HD recording <p>Note: Estimated storage will vary with a mix of HD and SD recordings.</p> <p>(ENTROPIC_COX_001968 at ENTROPIC_COX_001968)</p>
18	The television receiver device of claim 11, wherein the plurality of undesired channels comprises at least one television channel.	<p>The plurality of undesired channels comprises at least one television channel as described below.</p> <p>Specifically, the Accused Set Top Products are used to watch and/or record television programming. This includes a user selecting one or more desired television channels to watch and/or record. The other television channels provided by Cox that the user does not select constitute the plurality of undesired channels.</p>






Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>Arris XG1v3 High Definition DVR Receiver</p> <p>Share or Print This Article</p> <p>     </p> <p>Details</p> <div data-bbox="772 943 1705 1365">  <p>Receiver Capabilities</p> <ul style="list-style-type: none"> ✓ HD Capable ✓ Up to 6 simultaneous DVR recordings ✓ Up to 1000 hours of SD recording ✓ Up to 500 hours of HD recording <p>Note: Estimated storage will vary with a mix of HD and SD recordings.</p> </div> <p>(ENTROPIC_COX_001968 at ENTROPIC_COX_001968)</p>

Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
20	The television receiver device of claim 11, wherein the broadcast channels comprise cable broadcast channels.	<p>The broadcast channels comprise cable broadcast channels as described below.</p> <p>Specifically, Cox is a cable provider and the Accused Services include providing cable broadcast channels.</p> <p>“Full-Band Capture digital tuning technology and remote diagnostics: Integrated on-chip technology directly samples and digitizes the entire 1GHz downstream spectrum of a cable plant, providing access to any channel anywhere.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p> <p>“Bandwidth flexibility: Supports DOCSIS and digital video on any frequency eliminating limitations of "block" tuners. When combined with Broadcom's set-top box SoC with fast acquisition technology, video channels can be pre-tuned.” (ENTROPIC_COX_002016 at ENTROPIC_COX_002018)</p>

Entropic Communications, LLC v. Cox Communications, Inc., et al.
Case 2:23-cv-01049-JWH-KES (C.D. Cal.)

#	U.S. Patent No. 11,785,275	Accused Services and/or Accused Set Top Products
		<p>Arris XG1v3 High Definition DVR Receiver</p> <p>Share or Print This Article</p> <p>   </p> <p>Details</p> <div><p>Receiver Capabilities</p><ul style="list-style-type: none">✓ HD Capable✓ Up to 6 simultaneous DVR recordings✓ Up to 1000 hours of SD recording✓ Up to 500 hours of HD recording<p>Note: Estimated storage will vary with a mix of HD and SD recordings.</p></div> <p>(ENTROPIC_COX_001968 at ENTROPIC_COX_001968)</p>